AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 | 16

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0002	09-Sep-2002	W38XDD-2150-	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
US ARMY ENGINEER DISTRICT, CONTRACTING DIVISION PO BOX NASHVILLE TN 37202-	DACW62	.CONTRACTING DIVISION(BCN) ATTN: BERYL NEWSOME..... NASHVILLE TN	DACW62

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
	X	9A. AMENDMENT OF SOLICITATION NO. DACW62-02-B-0008
	X	9B. DATED (SEE ITEM 11) 15-Aug-2002
		10A. MOD. OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [X] is extended, [ ] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 3 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

The purpose of Amendment 0002 to Solicitation DACW62-02-B-0008 is stated on the following

NOTICE OF BID OPENING IS CHANGED TO 20 SEPTEMBER 2002 AT 1000 CENTRAL STANDARD TIME AS STATED ON PAGE 16 OF THIS AMENDMENT

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 09-Sep-2002

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

SPECIFICATIONS

AMENDMENT NO. 0002
Solicitation No. DACW62-02-B-0008
INSTRUMENTATION PROGRAM
Kentucky Lock Addition
Marshall and Livingston Counties, Kentucky

I. CHANGES TO SECTION C – DESCRIPTIONS AND SPECIFICATIONS

A. Paragraph TP-1.16 GOVERNMENT FURNISHED ITEMS (GFI). Delete paragraph TP-1.16 and replace with the following revised paragraph:

"TP-1.16 GOVERNMENT FURNISHED ITEMS (GFI)

a. General. The only Government Furnished Items included in this Contract are certain portions of Government owned facilities and electrical power to the instrumentation system. All Government furnished property is provided in an "as is" condition and shall be used only in connection with performance under this contract consistent with all Federal, Department of Defense, and Environmental Act Policies, standards, codes, or directives.

b. Lock Operations Building Basement. An area measuring 12' x 7' has been reserved for the Instrumentation Contractor's use in the operations building basement as shown on Contract Drawing No. 61N852-9. A description and constraints on using this area is contained in SECTION 2 INSTRUMENTATION.

c. Trailer/storage area. An area of 1/4 acre or less will be provided to the Instrumentation Contractor within the project's "Area 5" for parking a storage and/or office trailer. Area 5 is shown in Contract Drawing 61N850-2. It will be the Instrumentation Contractor's responsibility to provide any utilities for any trailers or facilities that he chooses to locate within Area 5. **Electrical power, telephone, and potable water facilities are located in or near Area 5 but no sanitary sewage collection or treatment facilities are available.** The Instrumentation Contractor will coordinate with and receive the approval of the COR prior to bringing any trailers or storing any equipment or constructing any facilities within Area 5.

d. Electrical power. The Government will provide AC power to the Instrumentation System through "as-is" outlets at the existing lock. The Contract Drawings and Section TP-2 provide more information on these power connections. The Government will not provide power to any facilities within Area 5 or for any other Contractor needs not a component of the Instrumentation System."

B. Paragraph TP-1.22 SYSTEM RELIABILITY. Delete paragraph TP-1.22 and replace with the following revised paragraph:

"TP-1.22 SYSTEM RELIABILITY

If an instrument does not function properly for a cumulative total of 48 hours or more within any 30 consecutive calendar day period, the Instrumentation Contractor will not be paid according to SECTION 2 INSTRUMENTATION-Measurement and Payment until repairs have been made and approved by the Contracting Officer.

The Instrumentation Contractor shall maintain a supply of replacement instruments on-site **(except load cells)**; the minimum supply shall be 10%, or a minimum of two, (whichever is greater) of each type of instrument scheduled for each installation phase."

C. Paragraph TP-2.3 CONTRACTOR RESPONSIBILITY. Delete paragraph TP-2.3 and replace with the following revised paragraph:

"TP-2.3 CONTRACTOR RESPONSIBILITY

The Instrumentation Contractor shall be responsible for furnishing, pre-testing, and installing the instrumentation system except as noted herein or on the Contract Drawings. The Instrumentation Contractor shall demonstrate and certify that the instrumentation system is fully operational after each phase of the system is completely installed. The Instrumentation Contractor shall also be responsible for maintaining the instrumentation system in working order, and for system monitoring, including obtaining readings and reporting results in the formats specified, for the instruments installed throughout the duration of the Contract.

The Instrumentation Contractor shall be responsible for maintaining access to and protection of all installations from damage, freezing, lightning, displacement, or from entry of foreign materials into the installation over the full duration of the Contract. The Instrumentation Contractor is responsible for repairing all damaged equipment. Costs related to damage that could not have been avoided by the Instrumentation Contractor, and are a direct result of other contractors or by the Government, will be reimbursed by the Government. All equipment needed for observations in connection with the instrumentation sensors shall be supplied and maintained by the Instrumentation Contractor unless otherwise specified. If damage, improper installation, foreign materials or other causes resulting from negligence by the Instrumentation Contractor, or his representative, results in unreliable or inoperable instrumentation and monitoring equipment, that portion of damaged instrumentation shall be replaced or repaired. The Instrumentation Contractor shall also be responsible for all costs related to any property damaged at the lock, both cofferdams, and any other Government owned or leased areas adjacent to the lock that are a result of Instrumentation Contractor's negligence or faulty work.

The Instrumentation Contractor is responsible for **providing restroom and drinking water facilities for all personnel associated with this contract;** wastewater collection/disposal where applicable; dust control; waste cleanup/disposal; and maintaining all work required under this Contract. The Work environment shall be free from environmental pollution that would be in violation of any federal, state or local regulations. The Instrumentation Contractor shall employ best management practices to ensure waste material, petroleum products, or other polluting materials are contained and prevented from entering the waterways.

The Instrumentation Contractor shall also be responsible for all costs related to removal/replacement of unforeseen embedded steel within the concrete on the lock wall that may be encountered during trenching or other concrete removal work. Any costs encountered during trenching, or other concrete removal (and based upon the Government's approval) by the Instrumentation Contractor shall be the responsibility of the Instrumentation Contractor.

All automated instrumentation shall be installed and tested by the Instrumentation Contractor in the presence of the Contracting Officer's designated representative. Complete installation of any instrument shall not be carried out until it has been approved by the Contracting Officer or his representative. The Instrumentation Coordinator shall make functional checks and/or calibration tests on the automated instrumentation. If the instrumentation sensors or any other component of the system they connect to prove to be unsatisfactory to the Contracting Officer, the defective equipment shall be replaced in kind at the Instrumentation Contractor's expense.

As part of this Contract, the Instrumentation Contractor shall replace any handrail mesh sections cut during the performance of his work. The replacement method shall be approved by the Contracting Officer prior to close of Contract."

D. Paragraph TP-2.9(c) Load Cells. Delete paragraph TP-2.9(c) and replace with the following revised paragraph:

"(c) Load Cells

The Lock Anchor Construction Contractor will furnish and install center-hole load cells to monitor applied rock-anchor loads at locations shown on the Contract Drawings. However, the Instrumentation Contractor is to select and specify the type of load cells to ensure their compatibility to the data acquisition system. **All verification testing for calibration, and associated costs, of each load cell will be the responsibility of the anchor contractor. The anchor contractor will provide calibration information to the Instrumentation Contractor at the beginning of the phase of work requiring connections of the load cells to the data acquisition system.** The load cells shall consist of either vibrating-wire sensors or electrical-resistance strain gauges. Each load cell shall be equipped with a minimum of six (6) strain gauges located on the perimeter, and the individual readings shall be averaged to minimize the effect of uneven and eccentric loading. The load cells shall have an inside diameter large enough to accommodate the anchor strands; this diameter is estimated to be about 10 inches. The load cells shall have a rated capacity of 1,000 tons, and shall have a sensitivity of 0.01 percent. The Instrumentation Contractor shall provide all instruments and equipment necessary to read the cells manually with a portable unit as well as to connect the load cells to the data acquisition system."

E. Paragraph TP-2.11(c) 1. Signal Cable. Delete paragraph TP-2.11(c) 1. and replace with the following revised paragraph:

"1. Signal Cable

Signal cable shall be compatible with the instruments and data acquisition system. All signal cable shall be shielded and waterproof. Splices on signal cables shall be kept to a minimum, be waterproof, and installed in accordance with all appropriate Manufacturer's recommendations. **Wireless transmission systems may be approved as an alternative to an all hardwired system if reliability can be demonstrated. Any wireless transmission system(s) selected shall be designed to minimize interference with normal lock operations with all components of the system approved by the Government."**

F. Paragraph TP-2.11(c) 3. Data Collection System. Delete paragraph TP-2.11(c) 3. and replace with the following revised paragraph:

"3 Data Collection Equipment

Instrumentation Contractor shall furnish and install an adequate number of data collecting devices. The Data Collection Equipment shall include any data logging devices, multiplexer array (s), surge and lightning protection, and backup power supply (if different from the Government provided 120 volt outlets at locations specified on the Contract Drawings) necessary to ensure system reliability. Instrumentation Contractor is responsible for ensuring system is grounded and protected from lightning and any power surges that may occur. **A grounding grid exists at the lock and may be connected to the instrumentation system through the gate and valve recesses shown on the Contract Drawings.** Instrumentation Contractor shall be responsible for performing any maintenance repairs that are a result of lightning or other induced interference. The Data Collection Equipment shall be enclosed and capable of operating at temperatures for the maximum temperature variations expected for each application at the lock or cofferdam. All Data Collection Equipment enclosures shall be watertight, dust tight, and shall be secured under lock and key at all times."

G. Paragraph TP-2.11(c) 3a. Data Collection System. Delete paragraph TP-2.11(c) 3a. and replace with the following revised paragraph:

"a. Data Logging Devices

Each automated instrument sensor on the lock and both cofferdams shall be connected to centralized data logging devices for relaying the sensor data to the SMS. Data collecting devices shall be equipped with all vital components necessary to collect and transmit data from all automatic reading instruments in this Contract to the SMS. Lightning and transient protection shall be included to protect these devices and connected instruments from potential electrical surges. Data logging devices shall contain all hardware necessary for reading each instrument sequentially. A control module shall provide sensor measurement, communication, data reduction, data and program storage, and control functions. RAM storage modules shall be sized large enough to store data between data retrieval from the SMS. Each data logging device shall be capable of allowing the SMS operator to select the number, order and frequency of instruments to be read; set time interval(s) between automatic readings; and transfer selected stored data. Instrumentation Contractor is responsible for ensuring an adequate number of data logging devices are supplied to accommodate both upstream and downstream cofferdam instrumentation requirements under this Contract.

All hardwiring and/or communication signals from outside the lock operations control building shall be run through the vent on the downstream side of the building as shown on the Contract Drawings. Once hardwire cabling is run through the vent, it shall be secured in either the existing cable trays located near the power service distribution panel or in a separate conduit protecting it from normal lock operation traffic in the basement. Method for running cable into the vent (basement) and to the SMS host computer shall be approved by the Government prior to the installation of Phase 1. Care should be given to protect all signal cables from electrical interference with existing cables within the overhead cable trays."

H. Paragraph TP-2.11(c) 3c. Programmable Logic Control (PLC) System. Delete paragraph TP-2.11(c) 3c. and replace with the following revised paragraph:

"c. Programmable Logic Control (PLC) System

Headwater, tailwater, and lock chamber pool water elevations are currently being measured on the existing lock structure using a Programmable Logic Control (PLC) system. **The existing system is a Square D SYMAX system that** utilizes pressure transducers located outside the lock operations building for measuring water elevations at the existing lock and dam on a real time monitoring basis. Cables from the transducers enter through manholes located on top of the lock surface and run into the basement of the lock operations building into a control box. The control box acts as a junction for processing and converting analog data to digital output format. SYMAX brand Rack Addressor Cards are used to transmit the analog data to the processor and to relay the converted data to the PLC system's broadcast modem. The modem relays the water level data to designated computers at the lock. The control box of the existing PLC processor system is located as shown on the Contract Drawings.

The data acquisition system used in this Contract shall use this system as reference for tying in and time stamping water level elevations of headwater, tailwater, and chamber pool elevations (measured in feet). This system shall be used at all times any automated instrument is read for data reporting purposes. **The Government will furnish and install PLC modules to provide 3 each isolated 4-20 mA analog output signals proportional to submerged pressure transmitters located in the headwater, chamber pool, and tailwater areas. The Government will provide the pressure transmitter ranges and base elevations for the Instrumentation Contractor to calculate these water level elevations.** The Instrumentation Contractor is responsible for providing all necessary hardware, cables, and software for communicating between the host computer data collecting software on the SMS computer and the existing PLC system's SYMAX brand Rack Addressor Cards located within the control box **for transmitting all appropriate signals**. The existing modem within the control box can accommodate more connections.

There is a possibility that the PLC system will be upgraded in the near future, but the upgraded system will have the same output as the existing system."

I. Paragraph TP-2.11(c) 5. Alarm System Delete paragraph TP-2.11(c) 5. and replace with the following revised paragraph:

"5. Alarm System

The data acquisition system shall incorporate an alarm feature that triggers an appropriate alarm message to 12 distinct telephone and 12 distinct electronic mail (email) destinations, including the two (2) lock operator control houses (towers) as well as the lock operations building, whenever threshold exceedance values are detected within the data acquisition system. At no point shall an alarm message be sent to any destination unless it has been verified by at least a second successive data reading exhibiting that a threshold value has been exceeded. This pertains to both the readings obtained once (1) every 60 seconds **(or 120 seconds for load cells)** for autonomous data scanning as well as those obtained for reporting requirements. The message shall detail the location of the device(s) triggering the alarm and the location of all instruments involved that are connected to that device. The message shall also specify the magnitude by which the threshold value has been exceeded. The Instrumentation Contractor shall be held responsible for any false alarms the data acquisition system may detect and shall prepare a plan of action to be approved by the Contracting Officer that handles false alarms. Instrumentation Contractor is to ensure the complete telephone and email list is updated on a monthly basis with copies provided to the Contracting Officer, as well as the COE Construction Field Office (CFO).

The Contracting Officer will provide all pertinent phone numbers and email addresses at a later date. Instrumentation Contractor is to ensure that at least one person has been contacted within this list to ensure the message of threshold exceedance has been relayed and that immediate action is employed.

A detailed report shall be compiled each time the alarm is triggered that explains reason for alarm message. If the alarm is false, then in the report the Instrumentation Contractor shall submit method of action to get alarm system and all defective instrumentation (where applicable) repaired and back in working order.

The Instrumentation Contractor shall give all personnel on the site, both of the Government and other contractors that will be on-site anytime during this Contract, an orientation that describes the alarm system, its reliability, and its operation. **Orientation may take the form of a written document and/or audio/visual presentation if it fulfills the items described herein.** The purpose of the orientation is to make everyone working at the lock and cofferdams aware of the system features, locations of instruments and automated data collecting devices, responsibilities of every person at the lock during construction, and the alarm system's ability to warn of potential danger to construction activities, cofferdams, and the existing lock. **The form of orientation selected shall ensure that all personnel on the site, both of the Government and other contractors, anytime during this Contract are aware of what the alarm will sound like, and what actions will take place following the alarm. The Instrumentation Contractor shall take full responsibility for ensuring the orientation information is updated monthly. The instrumentation contractor shall communicate weekly with the Government to verify that all new personnel on-site have been informed of the alarm system, and that any changes to the orientation are communicated to all personnel. The Instrumentation Contractor shall provide a form that each new person coming on-site will sign, which states that the orientation has taken place. The original forms will be retained by the COR.**

In the event of a failure of pertinent elements of the automatic alarm system during phases of construction where either worker safety or the integrity of the project could be compromised by the alarm system failure as determined by the COR, then the Instrumentation Contractor will be required to implement a backup alarm system. This backup alarm system shall be functioning within 24 hours of the failure of the pertinent elements of the automatic alarm system. This backup shall be a manual type alarm system that utilizes

manpower to read only the affected and pertinent automated instrumentation sensors connected to the defective alarm. Readings shall be obtained by using manual (portable) readout devices capable of reading the automated instrumentation sensors. After data is obtained from the portable readout device(s), they shall be compared immediately with threshold limits. Data shall be relayed to the software on the host computer and uploaded into the database(s) after reading. This manual backup alarm system shall be used until the main alarm system is restored. While the system is down, sensor readings on lock monoliths (or cofferdam) adjacent to lock construction activity (a minimum of 3 monoliths or entire cofferdam affected) shall be obtained once (1) every half-hour until the main alarm system is restored. Any automated sensors not connected to the defected portion of the alarm system shall resume their normally scheduled frequency. After main alarm is restored, each sensor on the affected structure is to resume its normally scheduled frequency. In the event of threshold value exceedance, a second reading shall be obtained immediately. If the second reading verifies a threshold value has been exceeded, the CFO shall be notified immediately-specifying that threshold value exceedance has been detected from the manual alarm backup system.

In the case of an inclinometer sensor becoming defective, readings on the RBMD(s) for that lock wall monolith(s) shall serve in lieu of that inclinometer reading. In the case of a tiltmeter sensor(s) becoming defective, the respective RBMD(s) and sawcut(s) for that monolith(s) shall both be used to serve in lieu of the tiltmeter recording. Readings for these manually read instruments shall be once (1) an hour until the sensors are back in service."

J. Paragraph TP-2.11(c) 7. Power Supply Delete paragraph TP-2.11(c) 7. and replace with the following revised paragraph:

"7. Power Supply

The Government will supply the AC power every month for the instrumentation system for the duration of this Contract. **The Government will provide a non-fused disconnect feeder from a dedicated 480V AC breaker that will be wall-mounted near the space allotted for the SMS within the basement of the lock operations building.** Any requirements (extra outlets, higher voltages, conduits, etc) to connect the instrumentation system to the existing power supply network shall be designed, furnished, installed, and maintained by the Instrumentation Contractor and approved by the Contracting Officer. A generator is available at the existing lock and will be provided by the Government as one (1) source of temporary backup power supply if necessary and as approved by the Contracting Officer."

K. Paragraph TP-2.12 DATA COLLECTION AND REPORTING FREQUENCY. Delete paragraph TP-2.12 and replace with the following revised paragraph:

"TP-2.12 DATA COLLECTION AND REPORTING FREQUENCY

All instrumentation shall be read on the basis as specified below for reporting and database management storage requirements. Additionally, all automated instruments shall be read every 60 seconds for autonomous data scanning to compare to threshold levels **except for the load cells. Load cells shall be read once (1) every 120 seconds for autonomous data scanning for comparing to threshold levels.** The payment bases are instruments installed satisfactorily, and payment will not otherwise be made until the Instrumentation Contractor demonstrates that instruments and data acquisition system are properly functioning. If necessary and approved by the Contracting Officer, initial readings may be made manually using portable readout devices capable of reading each type of selected instrument sensor. The Instrumentation Contractor is responsible for providing such readout devices.

If any instrument indicates a significant sudden change in condition or reaches or exceeds a threshold level, the Contracting Officer or his authorized representative shall be notified immediately as described in TP-2.11 (c) 5 ALARM SYSTEM. This pertains to both autonomously obtained data and for data obtained at frequency requirements outlined below."

L. Paragraph TP-2.12 (b) Existing Lock Landwall. Delete paragraph TP-2.12 (b) and replace with the following revised paragraph:

"(b) Existing Lock Landwall

All instrumentation sensors shall be continuously monitored by the automated data collecting system. The remote sensing instruments shall be automatically recorded and downloaded to the SMS computer at frequencies specified below. All automated instrumentation connected to the data acquisition system shall be read and observed immediately before starting of any excavation activity adjacent to the existing lock wall or construction-blasting activity at the lock. Other frequencies include the following:

1. For the landwall monoliths, L-3 through L-25, each inclinometer **and tiltmeter reading** shall be measured and recorded twice (2) everyday during baseline data collection-once (1) in the morning at 10:00 A.M. CST and once (1) in evening at 7:00 P.M. CST;

2. When excavation begins, both automated sensors and manually read instruments shall be read on at least four (4) monoliths adjacent to and completely spanning monoliths adjacent to any new lock excavation activity**. As excavation progresses, these automatic sensors and manually read instruments shall be read after each 10-foot increment of excavation;**

3. Load cell readings shall be obtained immediately before and immediately after stressing a row of inclined anchors in any monolith. These readings shall be taken at the cell or monolith being stressed and at the four (4) adjacent monoliths (in both directions along the principle axis of the lockwall) spanning the row of inclined anchors under concern. Inclinometer and tiltmeter sensors on these respective monoliths shall also be measured and recorded to observe how the monoliths may deflect under stressing of the anchors;

4. Additional readings shall be required if these or any other instruments indicate movements large enough to require verification as requested by the Contracting Officer;

5. The ambient temperature at the load-cell sensor locations shall be recorded at the time of the load-cell measurement. Once a month a manual reading shall be obtained on each load cell to verify the values being recorded by the automated monitoring system;

6. All other times, automated instruments are to be read at a minimum of two (2) times per week for reporting requirements."

M. Paragraph TP-2.12 (d) Manually Obtained Data. Delete paragraph TP-2.12 (d) and replace with the following revised paragraph:

"(d) Manually Obtained Data

For each RBMD, the location of the "foot" (i.e. orientation) of depth micrometer over the reading hole on each axis shall be marked on each RBMD installed so as to allow consistency between successive readings. Depth micrometer shall be kept in calibration according to Manufacturer's specifications. The same depth micrometer must be used for each consecutive reading on an individual RBMD to ensure consistency between readings. Two (2) readings shall be recorded for each of the three (3) axes per RBMD with an average value obtained for each axis. The average value for each axis is to be the values manually entered into the data collection software. Readings shall be to the nearest 0.001-inch of deflection.

For all remaining phases of data collection after baseline data is collected, an average reading on any RBMD shall not deviate over the tolerance value that was established during the period of baseline data collection. If a situation occurs where the average value exceeds the tolerance value, the Instrumentation Contractor shall immediately notify the COE Project Engineer at the CFO informing him of any suspicious monolith movement.

Readings on all RBMDs shall be made every two (2) weeks during baseline data collection period. No readings shall be taken on RBMDs during filling of the lock chamber. Readings shall only be taken while the chamber is full and empty (not in a state of transition) during the baseline data collection; however, readings can be observed during a lockage event. Chamber condition shall be recorded on the data collection form as specified in paragraph TP-2.12 (e).

Each time a monolith's RBMD is observed, that monolith's respective saw cut shall be observed and lock chamber pool conditions recorded.

Saw cut measurements are observations that shall document any noticeable changes occurring since the previous observation. If no noticeable change has occurred, recording shall read "No noticeable change since last visual observation." If an observation shows any suspicious and adverse changes, the Instrumentation Contractor shall immediately notify the COE Project Engineer at the CFO to notify him of any suspicious changes in instrumentation immediately.

Alignment pins shall be surveyed at least once (1) a month during duration of Contract unless otherwise specified by the Contracting Officer.

All manually obtained data from instruments on lockwall and cofferdams **(except for alignment pins)** shall be obtained at a minimum of two (2) times per month when no excavation or blasting takes place at the existing lock. Other reading frequencies may be periodically required and will be specified, as necessary, by the Contracting Officer."

N. Paragraph TP-2.12 (f) Data Processing/Reporting. Delete paragraph TP-2.12 (f) and replace with the following revised paragraph:

"(f) Data Processing/Reporting

All instrumentation data (automated and manually collected) shall be summarized in a monthly report furnished with one (1) copy to the CFO Project Engineer, four (4) copies to the Contracting Officer, according to the following requirements:

1. For duration of the Contract, the report shall be submitted in hardcopy and electronic format (CD) at the end of each calendar month analyzing that month's data collection and findings as well as all work performed on-site with respect to this Contract. At least one (1) section of the report shall be cumulative to date analyzing all automated and manually read instruments for both the lock wall and each cofferdam once installed and monitored with respect to phasing schedule for duration of Contract;

2. Instrumentation Contractor is to ensure all erroneous and bad data has been filtered from raw data and graphs before saved on the database(s) and the submission of report as outlined above;

3. All automated sensor readings shall be reduced in accordance with the Manufacturer's recommendations;

4. All plots shall be produced in color, legible, reproducible (CD format requirement also), contain a detailed legend, and show all units and titles. Graphs on the CD must be compatible with Microsoft Windows 2000 and XP operating environments;

5. Contractor is required to monitor the deflected shape of the inclinometer casings and compare that data with the initial data sets after installation. The readings shall be reduced in accordance with the Manufacturer's recommendations, and plotted versus elevation in feet. Inclinometer data shall be reduced to cumulative movement and plotted versus time;

6. All readings obtained from instrument sensors shall be converted, as necessary, from output voltages to an amount of deflection, tilt (measured in degrees, minutes, and seconds), load (in pounds), depth and/or elevation (in feet), or other beneficial output value for reporting and plotting requirements. Data stored in the database(s) shall be the converted value with corresponding units specified;

7. Tiltmeter data shall be reduced to degrees, minutes, and seconds from initial orientation and plotted versus time (in months and subcategorized into years);

8. Piezometric data shall be reduced to elevation in feet and be plotted versus time (months and subcategorized into years) and headwater and tailwater pool elevations;

9. Alignment pin readings shall be reduced to total horizontal and vertical movement (in inches) from the initial positions and shall be plotted versus time;

10. For monthly reports, the data plotted versus time shall be shown in plots spanning the one-month report period and shall indicate maximum and minimum instrument readings spanning the life of the instrument. The reading data shall include the following information: (1) instrument location number; (2) date of reading; (3) reduced readings; (4) all remarks from any field observations; (5) water elevation; (6) excavation elevation near that instrument; (7) ambient temperature; **(8) sensor temperature**.

11. RBMD data shall be reported in raw data (tabular form) as well as a cumulative plot. The plot shall show the initial amount of deflection of the depth micrometer as well as all data to date (measured in inches of deflection). Each monolith shall be plotted separately-showing all three directions of deflection. The x-axis of the plot shall be time (measured in corresponding month and subcategorized into years) with y-axis in amount of deflection.

12. All automated data shall include corrections for temperature changes, as recommended by the manufacturer (and necessary for calculations)."

O. Paragraph TP-2.13 MAINTENANCE AND RELIABILITY. Delete paragraph TP-2.13 and replace with the following revised paragraph:

"TP-2.13 MAINTENANCE AND RELIABLITY

The Instrumentation Contractor is responsible for providing any hardware and/or other necessary item(s) required to ensure the entire instrumentation and data acquisition/reporting system is functioning according to Manufacturer's specifications, and for maintaining the system in satisfactory working order for the length of the contract. This shall include repairing or replacing inoperable or unreliable components at no additional cost to the Government. **The Instrumentation Contractor will not be required to replace load cells that are inoperable.** Before work begins on a delivery order, the Instrumentation Contractor shall prepare a list of all extra components that are required for continuous operation of the system and quantities to be stockpiled on-site. He shall submit this list to the Contracting Officer for approval. The items on the approved list shall then be available at the site during the entire period of the delivery order. If a stockpiled item is used, it shall be immediately replaced with the same item that was used. In the event of a malfunction or breakdown, repair or replacement shall be initiated immediately after a faulty component is identified. The Instrumentation Contractor shall notify the Contracting Officer of the nature of the malfunction or breakdown within 12 hours, and shall provide an estimate of when that part of the system will be back in service. Depending upon the status of the lock construction at that time, the Contracting Officer will then decide whether or not a manual backup system will need to be implemented by the Instrumentation Contractor. If an instrument does not function properly for a cumulative total of 48 hours or more within any 30 consecutive calendar day period, the Instrumentation Contractor will not be paid according to Measurement and Payment until repairs have been made and approved by the Contracting Officer."

P. Paragraph TP-2.14 MEASUREMENT AND PAYMENT. Subparagraph (h). Delete Subparagraph (h), of Paragraph TP–2.14, and replace with the following revised subparagraph:

"(h) Load Cell Monitoring and Maintenance will be measured per each cell-month of monitoring and maintenance of approved operation. Payment will be made at the contract unit price per each cell-month, which shall constitute full compensation for all plant, labor, materials and equipment necessary for the complete and satisfactory operation, monitoring and maintenance of the load cell, including, but not limited to, testing, data recording and review, repairs, replacement of faulty equipment, and reporting of operation and maintenance activities. **The Instrumentation Contractor will not be required to replace load cells that are inoperable.** For purposes of measurement and payment the total quantity of cell-months is defined as the product of the quantity of cells being monitored and maintained and the quantity of months in the approved operation."

II. CHANGES TO DRAWINGS

A. The following Drawings have been revised:

Drawing No.	**Description**
61N851-1	EXISTING LOCK INSTRUMENTATION PLAN VIEW LAYOUT
61N851-3	EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L4, L5, L6
61N851-11	EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L16, L17
61N851-15	EXISTING LOCK INSTRUMENTATION PLAN VIEW MONOLITHS L19, L20, L21
61N852-9	EXISTING LOCK OPERATIONS BUILDING AND SITE MONITORING STATION (SMS)

SUMMARY OF CHANGES

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0001
The pricing detail quantity has decreased by 2,806.00 from 4,148.00 to 1,342.00.

CLIN 0002
The pricing detail quantity has decreased by 2,806.00 from 4,148.00 to 1,342.00.

CLIN 0011
The pricing detail quantity has decreased by 2.00 from 12.00 to 10.00.

CLIN 0012
The pricing detail quantity has increased by 18.00 from 108.00 to 126.00.

CLIN 0013
The pricing detail quantity has increased by 36.00 from 216.00 to 252.00.

CLIN 1002
The pricing detail quantity has decreased by 1,086.00 from 1,386.00 to 300.00.

CLIN 1006
The pricing detail quantity has decreased by 991.00 from 1,132.00 to 141.00.

CLIN 1010
The pricing detail quantity has increased by 12.00 from 198.00 to 210.00.

CLIN 1012
The pricing detail quantity has increased by 33.00 from 144.00 to 177.00.

CLIN 1013
The pricing detail quantity has increased by 66.00 from 288.00 to 354.00.

CLIN 1014
The pricing detail quantity has increased by 1.00 from 0.00 to 1.00.

CLIN 1015
The pricing detail quantity has increased by 9.00 from 132.00 to 141.00.

CLIN 2004
The pricing detail quantity has increased by 54.00 from 564.00 to 618.00.

CLIN 2006
The pricing detail quantity has increased by 21.00 from 132.00 to 153.00.

CLIN 2008
The pricing detail quantity has increased by 25.00 from 80.00 to 105.00.

CLIN 2010
The pricing detail quantity has increased by 6.00 from 288.00 to 294.00.

CLIN 2012
The pricing detail quantity has increased by 45.00 from 144.00 to 189.00.

CLIN 2013
The pricing detail quantity has decreased by 22.00 from 400.00 to 378.00.

CLIN 2015
The pricing detail quantity has increased by 21.00 from 132.00 to 153.00.

CLIN 3001
The pricing detail quantity has decreased by 2,074.00 from 3,416.00 to 1,342.00.

CLIN 3002
The pricing detail quantity has decreased by 2,074.00 from 3,416.00 to 1,342.00.

CLIN 3003
The pricing detail quantity has decreased by 6.00 from 30.00 to 24.00.

CLIN 3004
The pricing detail quantity has increased by 18.00 from 834.00 to 852.00.

CLIN 3006
The pricing detail quantity has increased by 24.00 from 231.00 to 255.00.

CLIN 3008
The pricing detail quantity has increased by 42.00 from 99.00 to 141.00.

CLIN 3010
The pricing detail quantity has increased by 21.00 from 288.00 to 309.00.

CLIN 3012
The pricing detail quantity has increased by 30.00 from 261.00 to 291.00.

CLIN 3013
The pricing detail quantity has decreased by 52.00 from 634.00 to 582.00.

CLIN 3014
The pricing detail quantity has decreased by 1.00 from 12.00 to 11.00.

CLIN 3015
The pricing detail quantity has increased by 6.00 from 249.00 to 255.00.

CLIN 3016
The pricing detail quantity has increased by 54.00 from 144.00 to 198.00.

CLIN 4001
The pricing detail quantity has decreased by 122.00 from 122.00 to 0.00.

CLIN 4002
The pricing detail quantity has decreased by 2,991.00 from 3,516.00 to 525.00.

CLIN 4008
The pricing detail quantity has decreased by 45.00 from 213.00 to 168.00.

CLIN 4009
The pricing detail quantity has increased by 9.00 from 9.00 to 18.00.

CLIN 4010
The pricing detail quantity has increased by 96.00 from 378.00 to 474.00.

CLIN 4012
The pricing detail quantity has increased by 24.00 from 300.00 to 324.00.

CLIN 4013
The pricing detail quantity has increased by 148.00 from 500.00 to 648.00.

CLIN 4015
The pricing detail quantity has increased by 48.00 from 240.00 to 288.00.

CLIN 4016
The pricing detail quantity has increased by 18.00 from 198.00 to 216.00.

SECTION E - INSPECTION AND ACCEPTANCE

The following have been deleted:

52.211-18	Variation in Estimated Quantity	APR 1984

SECTION I - CONTRACT CLAUSES

The following have been added by full text:

52.216-21 REQUIREMENTS (OCT 1995)

(a) This is a requirements contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies or services specified in the Schedule are estimates only and are not purchased by this contract. Except as this contract may otherwise provide, if the Government's requirements do not result in orders in the quantities described as "estimated" or "maximum" in the Schedule, that fact shall not constitute the basis for an equitable price adjustment.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. Subject to any limitations in the Order Limitations clause or elsewhere in this contract, the Contractor shall furnish to the Government all supplies or services specified in the Schedule and called for by orders issued in accordance with the Ordering clause. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(c) Except as this contract otherwise provides, the Government shall order from the Contractor all the supplies or services specified in the Schedule that are required to be purchased by the Government activity or activities specified in the Schedule.

(d) The Government is not required to purchase from the Contractor requirements in excess of any limit on total orders under this contract.

(e) If the Government urgently requires delivery of any quantity of an item before the earliest date that delivery may be specified under this contract, and if the Contractor will not accept an order providing for the accelerated delivery, the Government may acquire the urgently required goods or services from another source.

(f) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the date of contract completion.

(End of clause)

(End of Summary of Changes)

The following items are applicable to this modification:

SCHEDULE B-SUPPLIES OR SERVICE

SECTION B -Column Headings for the Schedule of Prices: **QUANTITY** is changed to read **ESTIMATED QUANTITY.**

BIDS ARE DUE PRIOR TO TIME SET FOR PUBLIC OPENING OF BIDS.

SECTION L – Instructions, conditions, and notices to bidders, PUBLIC OPENING OF BIDS is changed to read:

Bids will be publicly opened at 1000 Central Standard Time on Friday, 20 September 2002, in the Bid Opening Room of the Nashville District Corps of Engineers Contracting Office, Room A604, of the Annex in the Estes Kefauver Building on 801 Broad Street, Nashville, Tennessee. Their content will be made public for information of bidders and others interested, who may be present.

Electrician union information: Per the Service Contract Act all employers are subject to the union agreements of the area. There is an electicians union, Paducah, Kentucky Division, Southern Indiana Chapter, N.E.C.A., Inc. and Local Union 816, I.B.E.W., in effect. You may get a copy of this agreement by requesting a copy from Gary Seay at 270-898-2456.